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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Geoffrey B. Rhoads

Application No.: 09/479,304

Filed: January 6, 2000

For: WIRELESS METHODS AND DEVICES  
EMPLOYING STEGANOGRAPHY

Examiner: O. Akpati

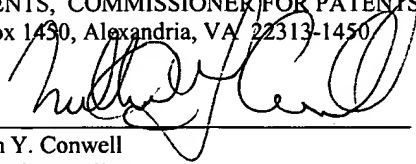
Date: November 9, 2004

Art Unit 2135

Confirmation No. 2884

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**TRANSMITTAL LETTER**

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Enclosed for filing in the above-captioned matter are the following:

- ☒ Appeal Brief (fee **\$340.00**)
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- ☒ Please charge **\$340.00** (fee for Appeal Brief) and any additional fees which may be required in connection with filing this document and any extension of time fee, or credit any overpayment, to Deposit Account No. 50-3284.

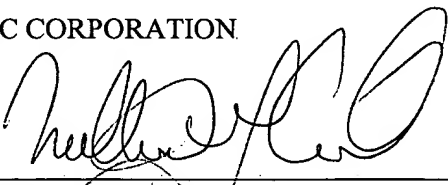
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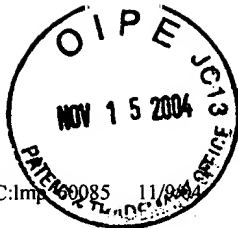
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Respectfully submitted,

DIGIMARC CORPORATION

By   
William Y. Conwell  
Registration No. 31,943



WYC:lm

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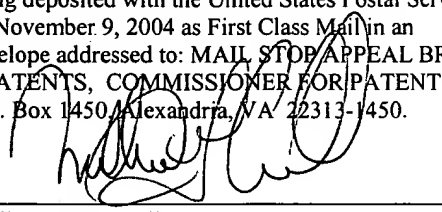
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William Y. Conwell  
Attorney for Applicant

**APPEAL BRIEF**

Mail Stop: Appeal Brief - Patents  
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P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This brief is in furtherance of the Notice of Appeal filed September 9, 2004. Please charge the fee required under 37 CFR 1.17(f), and the extension of time fee, and any other fee or deficiency, to deposit account 50-3284 (see transmittal letter).

11/16/2004 BSAYAS11 00000013 503284 09479304

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**I. REAL PARTY IN INTEREST**

The real party in interest is Digimarc Corporation, by an assignment from the inventor recorded at Reel 8050, Frames 970-972, on July 11, 1996.

**II. RELATED APPEALS AND INTERFERENCES**

There is no appeal or interference related to the present application.

**III. STATUS OF CLAIMS**

Claims 1-6 stand finally rejected and are appealed.

**IV. STATUS OF AMENDMENTS**

All earlier-filed amendments have been entered.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

The claimed subject matter relates to steganography and cell phones.<sup>1</sup>

Steganography is the science of information hiding. It encompasses a great variety of techniques by which, e.g., plural bits of digital data are hidden in some other object, without leaving human-apparent evidence of alteration or data representation.<sup>2</sup> Thus, a photograph can be steganographically encoded to convey a plural-bit digital payload identifying the photographer,<sup>3</sup> or the audio from a cell phone can be steganographically encoded to convey a

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<sup>1</sup> See, e.g., Specification, page 1, lines 19-21.

<sup>2</sup> See, e.g., U.S. Patent 5,832,119 at col. 1, lines 27-31. The '119 patent issued from application 08/534,005, cited in the present specification at page 1, line 7, and incorporated by reference at page 1, lines 14-15.

<sup>3</sup> *Ibid* at col. 21, lines 21-27.

plural-bit payload identifying the cell phone that originated the call.<sup>4</sup> This encoding can be detected and acted-upon by appropriate decoder systems,<sup>5</sup> but is not generally perceptible to a human viewer of the photograph, nor a human listener to the cell phone audio.<sup>6</sup>

According to one aspect (claim 1), the invention comprises a cell phone with a data capture system and a radiant-energy digital data transmission system.<sup>7</sup> The cell phone further includes a steganographic encoder that hides a plural-bit auxiliary code within data captured by the data capture system, prior to its transmission by the data transmission system.<sup>8</sup>

The data capture system can capture audio, and include a microphone (claim 2).<sup>9</sup>

The steganographic encoder can operate transparently to a user of the cell phone, so that substantially all of the data transmitted by the phone is steganographically encoded (claim 3).<sup>10</sup>

According to another aspect (claim 4), the invention comprises a method of operating a cell phone. The method includes (a) receiving input information; (b) steganographically encoding the input information to hide a plural-bit auxiliary code therein; and (c) transmitting the steganographically-encoded information by wireless, in a digital format.<sup>11</sup>

This method can further comprise (claim 5) (i) receiving the input information in non-digital form;<sup>12</sup> (ii) expressing the received information in digital form;<sup>13</sup> and (iii) steganographically encoding the digital form of the input information.<sup>14</sup>

The input information can comprise audio information (claim 6).<sup>15</sup>

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<sup>4</sup> See, e.g., Specification at page 3, lines 3-9.

<sup>5</sup> See, e.g., Specification at page 17, lines 12-15.

<sup>6</sup> See, e.g., Specification at page 7, lines 24-25.

<sup>7</sup> See, e.g., Fig. 1, and Specification at page 6, line 23 to page 7, line 5.

<sup>8</sup> See, e.g., Fig. 2, and Specification at page 7, lines 22-25; page 11, line 2.

<sup>9</sup> See, e.g., Fig. 1 (microphone 16), and Specification at page 6, line 26.

<sup>10</sup> See, e.g., Specification at page 3, lines 7-9.

<sup>11</sup> See, e.g., Specification at page 1, lines 25-26; page 6, line 26 to page 7, line 5; and page 7, lines 24-25.

<sup>12</sup> See, e.g., Fig. 1 (microphone 16), and Specification at page 6, line 23.

<sup>13</sup> See, e.g., Fig. 1 (A/D converter 18), and Specification at page 6, lines 26-27.

<sup>14</sup> See, e.g., Fig. 2, and Specification at page 8, line 1.

<sup>15</sup> See, e.g., Specification at page 22, line 7.

**VI. GROUND OF REJECTION**

Each of the pending claims stands rejected as anticipated by Greenberg (5,379,345).

**VII. ARGUMENT**

The sole reference, Greenberg (assigned to Radio Audit Systems, Inc.), is concerned with commercial radio broadcasts. In particular, Greenberg is concerned with automating the manual-logging procedure by which radio stations formerly tracked the playing of advertisements. According to his invention, Greenberg encodes advertisements so that automated equipment can monitor radio broadcasts to determine the date and time at which each advertisement was played, and to confirm that they were played in full. He explains:

*It is vitally important to the advertiser that the entirety of its spot be transmitted. As commercials are often prepared with the "tag" or "punch" at the end of the spot, it is important that the commercial does not end prematurely. If, for example, a 60-second spot is only broadcast for 55 seconds, shortening of air time due to loss occurring at the beginning of the spot is of less concern than loss at the end. Thus, while any time loss is meaningful, the position of such loss within the commercial is determinative of the loss of value resulting therefrom.*

*While it has been a standard industry practice for stations to maintain logs of the content of their broadcasts, the log is unable to document the specific identity, quality or precise length of a broadcast segment. In addition, because the logs are maintained by station personnel themselves, there exists the possibility that inaccurate or erroneous information can be transcribed.<sup>16</sup>*

Greenberg does not concern, or mention, cell phones.

**1. Claims 1-3**

Greenberg fails to teach each limitation of apparatus claim 1. The claim reads:

*1. A cell phone including a data capture system and a radiant-energy digital data transmission system, characterized in that the cell phone further includes a steganographic encoder that hides a plural-bit auxiliary code within data captured by the*

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<sup>16</sup> Greenberg, patent 5,379,345, col. 1, lines 47-64.

*data capture system prior to its transmission by the data transmission system.*

As noted, Greenberg fails to teach a cell phone.

The Examiner stretches too far when he argues<sup>17</sup> that Greenberg's Fig. 1 – with its illustration of a transmitter and receiver, comprises a wireless phone.

A phone permits two-way communication; Fig. 1 of Greenberg shows conventional radio broadcast (*i.e.*, one-way).

The Examiner also stretches too far when he argues

*The audio signal being wirelessly broadcast (Fig. 1) can be done by a telephone. If it is wirelessly done, then the telephone must be a wireless telephone, which is equivalent to a cell phone.*<sup>18</sup>

First, it will be recognized that an Examiner's conclusion that something "can be done" is not a teaching of the prior art that something *has* been done. § 102 requires the latter.

Moreover, an assertion of equivalency has no place in an anticipation rejection.

Still further, on the merits, the Examiner's assertion that a wireless telephone<sup>19</sup> is equivalent to a cell phone, ignores the "cell" limitation, and the meaning this term is commonly given in the art.

Since the art fails to teach that for which it has been cited, the rejections of claims 1 - 3 fail and must be reversed.

## 2. Claims 4 and 6

Greenberg likewise fails to teach each limitation of independent method claim 4. The claim reads:

*4. A method of operating a cell phone, comprising:  
receiving input information;*

<sup>17</sup> Final Rejection, page 2, paragraph 2.

<sup>18</sup> Final Rejection, page 3, last line, to page 4, line 4 (emphasis added).

<sup>19</sup> Again, Greenberg has no teaching of a wireless telephone.

*steganographically encoding the input information to hide a plural-bit auxiliary code therein; and  
transmitting the steganographically-encoded information by wireless in a digital format.*

Again, Greenberg has no teaching concerning operating a cell phone.

Nor does Greenberg have any teaching concerning transmission of steganographically-encoded information by wireless in a digital format. (Cell phones are of two types. The first generation phones used analog transmission formats, *e.g.*, AMPS and TACS. The second and later- generation cell phones use digital transmission formats, *e.g.*, GSM, TDMA, CDMA, GPRS, 3G. Claim 4 requires the latter type.)

Again, the failure of Greenberg to teach each element of claim 4 requires reversal of the rejection.

### 3. Claim 5

Claim 5 depends from claim 4 and is similarly allowable. Moreover, claim 5 is independently allowable. The claim reads:

*5. The method of claim 4 which includes:  
receiving the input information in non-digital form;  
expressing the received information in digital form; and  
encoding the digital form of the input information.*

Greenberg is not understood to teach “receiving the input information in non-digital form,” and then “expressing the received information in digital form” and “encoding the digital form of the input information.”

Greenberg *does* teach that his “added information” is digital data (see, *e.g.*, col. 4, lines 22, 33-34). However, the underlying audio signal with which it is combined (*i.e.*, the “input information” in the Examiner’s interpretation) is *not* digital. Greenberg notes that his digitized data signal is “combined with the conventional audio broadcast” (col. 4, lines 33-35). No conversion of Greenberg’s audio to digital form is taught.



Claim 5, in contrast, requires that the "input information" be expressed in digital form at the time of the encoding.

Again, Greenberg does not teach the method claimed, so the rejection of claim 5 should be reversed.

**VIII. CONCLUSION**

The rejections under § 102 fail because the art does not teach each of the claims' limitations. Accordingly, the Board is requested to reverse the outstanding rejections, and remand to the Examiner for issuance of a notice of allowance.

Date: November 9, 2004

**CUSTOMER NUMBER 23735**

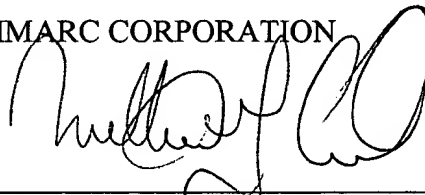
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Respectfully submitted,

DIGIMARC CORPORATION

By



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**APPENDIX A**  
**PENDING CLAIMS**

1. A cell phone including a data capture system and a radiant-energy digital data transmission system, characterized in that the cell phone further includes a steganographic encoder that hides a plural-bit auxiliary code within data captured by the data capture system prior to its transmission by the data transmission system.

2. The cell phone of claim 1 in which the data capture system captures audio and includes a microphone.

3. The cell phone of claim 1 in which the steganographic encoder operates transparently to a user of the cell phone, wherein substantially all of the data transmitted by the cell phone is steganographically encoded.

4. A method of operating a cell phone, comprising:  
receiving input information;  
steganographically encoding the input information to hide a plural-bit auxiliary code therein; and  
transmitting the steganographically-encoded information by wireless in a digital format.

5. The method of claim 4 which includes:  
receiving the input information in non-digital form;  
expressing the received information in digital form; and  
encoding the digital form of the input information.

6. The method of claim 5 in which the input information is audio information.